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Wu et al.

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[54]	APPARATUS AND METHOD FOR
	CHARACTERIZING FIBER CRIMPS

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348/128; 348/127

[56] References Cited

U.S. PATENT DOCUMENTS

4,057,350	11/1977	Craig	356/199
4,232,336	11/1980	Henry	358/106
4,240,110	12/1980	Henry	358/107
4,270,252	6/1981	Harrison et al	. 28/250
4,274,746	6/1981	Cardell et al	356/429
4,415,926	11/1983	Непгу	358/107
4,460,921	7/1984	Henry et al	358/107
4,550,377	10/1985	Craemer	364/471

4,617,682	10/1986	Mori et al 382/28
4,675,730	6/1987	Adomaitis et al 358/106
4,698,674	10/1987	Bloom 358/140
4,737,846	4/1988	Tokuno et al 358/106
4,764,969	8/1988	Ohtombe et al 382/8
4,807,143	2/1989	Matsuura 364/468
4,857,749	8/1989	McCarty 250/571
4,878,114	10/1989	Huynh et al 358/106
4,887,155	12/1989	Massen 358/107
5,315,366	5/1994	Inada et al 356/238
5,351,308	9/1994	Kaminer et al 382/8

FOREIGN PATENT DOCUMENTS

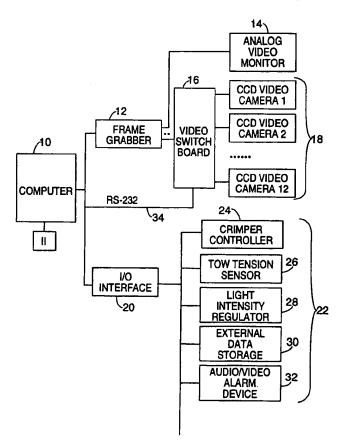
WO 92/02001 2/1992 WIPO .

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57] ABSTRACT

Apparatus and method are described for measuring and controlling the crimp characteristics of a moving crimped tow. A light source illuminates a section of the moving crimped tow and at least one camera acquires a video image of the tow. The acquired image is digitized and a processor decomposes the interlaced image into two non-interlaced field images. Crimp characteristics are derived based on the decomposed images.

14 Claims, 12 Drawing Sheets



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